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Investigation of the effect of verbal criticism upon speech fluency of normally fluent male subjects during an oral reading situation

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AN INVESTIGATION OF THE EFFECT OF VERBAL CRITICISM UPON SPEECH FLUENCY OF NORMALLY FLUENT MALE SUBJECTS DURING AN ORAL READING SITUATION

by

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

During the past twenty years much research in the field of speech pathology has been directed toward the study of that speech behavior which has been termed "stuttering". Theories have been posed and hypotheses tested in an effort to determine the cause, or causes, of "stuttering". However, there has not always been a clearly defined description of the behavior which has been discussed. In some contexts the term "stuttering" seems to have been used concretely to denote observable nonfluencies[1] of speech. Van Riper, for example, stated,

> Unlike the Indians . . . we have a word for excessive repetitions, prolongations or breaks in the fluency of speech and we call it stuttering.[2]

In other contexts the term apparently is used abstractly to refer to such concepts as anxiety reactions and avoidances. Bloodstein, for instance, has said,

> . . . there would appear to be two fundamental beliefs underlying and maintaining anticipatory struggle behavior. One is the

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[1] In most instances where the term nonfluencies is employed, it denotes repetitions, interjections, revisions, incomplete phrases, broken words and prolonged sounds in speech. Johnson has also used the term "disfluency" to denote these same instances in speech. See: Wendell Johnson, "Measurements of Oral Reading and Speaking Rate and Disfluency of Adult Male and Female Stutterers and Non-Stutterers", Journal of Speech and Hearing Disorders, Mon. 7, June 1961, pp. 1-20.

[2] Charles Van Riper, Speech Correction - Principles and Methods, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, Third Edition, 1958, p. 350.

> stutterer's belief that he will have difficulty with his speech. The other is the knowledge that he must not.[3]

Because it is difficult in much of the literature to determine the referents of the author's term "stuttering", quotation marks have been used whenever the term is employed in the following discussion.

Some theorists have postulated a physiological basis for "stuttering". Travis[4], in 1942, advanced the theory that "stuttering" was caused by a conflict between the two hemispheres of the brain. West[5] also theorized that "stuttering" had a physiological basis. In 1958 he described "stuttering" as a form of epilepsy confined to the speech musculature. He termed the disorder "pyknolepsy".

However, most of the current literature views "stuttering" as a psychological disorder, which may or may not have some associated physiological components. Sheehan[6], for example, has described "stuttering" as an approach-avoidance conflict in which the speaker is torn between the alternatives of speech and silence, both of which are non-rewarding for him. Wischner[7] has discussed "stuttering" as a conditioned response in which general speech situations or specific words are the conditioned stimuli which instigate anxiety reactions for the speaker.

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[3]Jon Eisenson, Stuttering, A Symposium, New York, Harper and Brothers, 1958, p. 39.

[4]Eugene F. Hahn, Stuttering - Theories and Therapies, Stanford University Press, Stanford, California, 1943, p. 19.

[5]Jon Eisenson, Stuttering, A Symposium, op. cit., p. 178.

[6]Ibid., pp. 123-166.

[7]George Wischner, "Stuttering Behavior and Learning: A Preliminary Theoretical Formulation", Journal of Speech and Hearing Disorders, V. 15, December 1950, pp. 324-335.

The current emphasis on psychological etiology of "stuttering" disorders has probably been stimulated in part by the diagnosogenic theory which was first advanced by Johnson in 1942.[8] This theory purported that nonfluencies are characteristic of normal speech. Johnson theorized that an adult listener may evaluate the nonfluencies of early childhood speech as abnormal; in his concern about these nonfluencies he may display negative reactions to the child's speech; in turn, some children may react to this evaluation and attempt to avoid these normal nonfluencies. It is theorized that the child then becomes tense while speaking, nonfluencies increase and become a stimulus for further avoidant behavior. Johnson stated,

> Nonfluency as a response is hardly a problem; nonfluency as a stimulus is something else again.[9]

Recently this theory has been supported by Johnson with information obtained from studies which were conducted over a twenty-year period.[10] Investigations by Darley[11], Bloodstein[12], Van Riper[13] and Frick[14] also

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[8]Wendell Johnson, "The Onset and Early Development of Stuttering", Journal of Speech Disorders, V. 8, 1942, pp. 251-257.

[9]Wendell Johnson, People in Quandries, New York, Harper and Brothers, 1946, p. 453.

[10]Wendell Johnson, The Onset of Stuttering, University of Minneapolis Press, Minneapolis, Minnesota, 1959.

[11]Wendell Johnson et all, Stuttering in Children and Adults, University of Minnesota Press, Minneapolis, Minnesota, 1955, pp. 10-11.

[12]Oliver Bloodstein, "Hypothetical Conditions Under Which Stuttering is Reduced or Absent", Journal of Speech and Hearing Disorders, 1950, V. 15, pp. 142-153.

[13]Charles Van Riper, "Effect of Penalty Upon Stuttering Spasms", Journal of Genetic Psychology, V. 50, pp. 193-195.

[14]James Frick, "An Exploratory Study of the Effect of Punishment (Electric Shock) Upon Stuttering Behavior", (unpublished Ph.D. dissertation, University of Iowa, Iowa City, 1951).

offer evidence which supports the diagnosogenic theory. Darley[15], for example, concluded that children's nonfluencies tended to be aggravated and increased in situations involving non-rewarding parental attitudes. In a study of nonfluency in two hundred four clinical subjects[16], Bloodstein[17] found that fluency was improved in situations involving absence of unfavorable listener reactions. In another study[18] however, Bloodstein did find evidence that some children with fluency problems had not been corrected for their speech efforts. This evidence does not conflict with the Johnson theory, Bloodstein reasoned, because of the possibility that these children had evaluated their own speech as being different and had reacted to their own evaluations. Van Riper[19] and Frick[20] both offer evidence that suggests a positive relationship between punitive situations and increased nonfluency in adult clinical subjects.

Because of interest which has been motivated in part by the diagnosogenic theory, some investigators have become concerned with "normally fluent" speech. The literature in the field of speech pathology

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[15]Wendell Johnson et all, Stuttering in Children and Adults, op.cit.

[16]"Clinical Subjects" as used in this text describes experimental subjects who had been diagnosed or identified as speakers with "stuttering" problems. The term "normal speakers" as sued in this paper describes subjects who were considered to be "normally fluent" speakers.

[17]Oliver Bloodstein, "Hypothetical Conditions Under Which Stuttering is Reduced or Absent", op. cit.

[18]Jon Eisenson, Stuttering, A Symposium, op. cit., pp. 16-17.

[19]Charles Van Riper, "Effect of Penalty Upon Stuttering Spasms", op. cit.

[20]James Frick, "An Exploratory Study of the Effect of Punishment (Electric Shock) Upon Stuttering Behavior", op. cit.

offers a relatively small amount of information regarding the incidence and frequency of nonfluencies in "normally fluent" speakers. One of the earliest studies in the field to offer relevant information about "normally fluent" speech was conducted by Davis.[21] She found nonfluencies to be characteristic of the speech of preschool children. Part of this study was concerned with the relation of nonfluencies involving repetitions to situational factors. One recorder wrote verbatim all that was said by one child during two one-half hour periods of observation during free play in the school. Another observer recorded as much as possible of all that was said to the child and also what activity the child was participating in at the time. Findings indicated that

> . . . Repetition is not unique in a select group of children, but is part of the speech pattern of all children, as judged by the group here studied.[22]

Investigations by Egland[23], and Branscom, Hughes and Oxtoby[24] also recognized nonfluency as characteristic of the speech of preschool children.

More recent studies by Cesaretti[25] and Glass[26] investigated

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[21]Dorothy Davis, "The Relation of Repetitions in the Speech of Young Children to Certain Measures of Language Maturity and Situation Factors", Journal of Speech Disorders, V. 4, pp. 303-318 (December 1939), V. 5, pp. 235-246 (September 1940).

[22]Ibid., V. 4, pp. 307-309.

[23]Wendell Johnson, Stuttering in Children and Adults, op. cit., pp. 181-188.

[24]Ibid., pp. 157-180.

[25]Marilyn Cesaretti, "Speech Nonfluencies of First Grade Children", (unpublished M.A. thesis, Humboldt State College, Arcata, California, 1958).

[26]Gail Glass, "A Comparative Study of Nonfluencies of First and Third Grade Children With Consideration of Sex Differences", (unpublished M.A. thesis, Humboldt State College, Arcata, California, 1959).

frequency of nonfluencies in speech of children from the first and third grades during controlled speaking situations. These studies agreed with the others, in that nonfluency was found to be a consistent and normal component of the speech of children. Similar information about adult normal speakers was obtained from a study which has been discussed by Johnson.[27] In this study measurements were made of nonfluent instances in the speech of fifty male universtty students ranging from seventeen years to twenty-four years of age. Measurements of fluency were made under three controlled speaking situations: Job task, TAT[28] task, and Oral reading task. Analysis revealed that total nonfluencies were similar for both extemporaneous speaking tasks, but that nonfluencies were significantly less frequent on the reading task. Davis[29] also found that certain situational factors could be recognized in relation to extremes of nonfluency. The three situations which elicited the highest number of repetitions in the children's speech were: 1) Excitement over own activity; 2) Wants to direct activity of another child according to his own plan; 3) Attempt to attract attention of child.

Other empirical studies have been designed in an effort to isolate information about the fluctuation of nonfluency of normally fluent speakers in various situations. One of these investigations was designed

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[27]Wendell Johnson, "Measurements of Oral Reading and Speaking Rate and Disfluency of Adult Male and Female Stutterers and Non-Stutterers", op. cit., p. 14.

[28]H. A. Murray, Thematic Apperception Test, Cambridge, Harvard University Press, 1943. Card #10.

[29]Dorothy Davis, "The Relation of Repetitions in the Speech of Young Children to Certain Measures of Language Maturity and Situation Factors", op. cit., V. 5, p. 235-246.

by Hill[30] to study disorganization of behavior in normal speaking adults. Part of this study attempted to measure the effect of threat of penalty (electric shock) on speech fluency in propositional speech. Data indicated that speech interruptions of these subjects increased under threat of penalty. Further information relevant to fluctuating nonfluency in speaking situations has been discussed by Lerea.[31] He attempted to obtain quantitative evidence about the verbal characteristics of persons reporting severe speech fright, by measuring nonfluency of fourteen students during two three-minute speaking situations. All individuals reported severe speech fright during the first speaking situation and slight speech fright or no fright during the second situation. Analysis showed that nonfluencies were considerably more frequent when speakers reported severe fright.

The above cited studies of normal speakers are consistent in noting that nonfluency appears to be characteristic of various populations of normal speakers and offer some evidence that nonfluency increases in situations which appear to be threatening for the speaker. These findings seem to lend support to the diagnosogenic theory that negatively rewarding situations tend to increase nonfluency in speech and are consistent with the contention that clinical speakers were originally part of a normal speaking population. No evidence has been offered however, to support the contention that nonfluency increases

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[30]H. E. Hill, "Disorganization in Normal Subjects", Journal of Speech and Hearing Disorders, 1954, pp. 295-305.

[31]Louis Lerea, "A Preliminary Study of the Verbal Behavior of Speech Fright", Speech Monographs, Vol. 23, August 1956, pp. 229-233.

during actual verbal disapproval of a normally fluent speaker. This particular information would add further support to the diagnosogenic theory and possibly give implications for further experimental research with normally fluent speakers.

This study was designed to measure the effect of generalized verbal criticism on fluency of adult male normally fluent speakers in an oral reading situation.

It is hypothesized that a group of normally fluent adult subjects will exhibit more nonfluencies following association of generalized verbal criticism with successive oral readings of a passage than will a non-criticized control group.

CHAPTER II

EXPERIMENTAL PROCEDURE

A group of forty-eight male freshman students who considered themselves to be normally fluent speakers was selected for this study. Subjects were randomly divided into two groups and asked to read orally a three-hundred word passage five successive times. Control group subjects were asked by tape-recorded instruction to reread the passage after the first, second, third and fourth readings. Experimental subjects, in addition, received taped, verbal criticism after each of the first four readings. The first and fifth readings were tape-recorded during the experiment without the subjects' knowledge. These ninety-six samples were put in random order and played back independently to three observers who were asked to identify instances of nonfluency. The criterion measure for this study was the number of nonfluencies for an individual on a reading, using the mean of the scores obtained by three observers.

Subjects

Because the experimenter wished to generalize from a reasonably homogeneous sample, freshman male subjects were selected for the study. Surveys[32] indicate that males are more nonfluent than females in our society and therefore the male subjects were selected. The forty-eight

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[32]Hildred Schuell, "Sex Differences in Relation to Stuttering: Part I", Journal of Speech Disorders, 1946, V. 11, pp. 277-279.

subjects came from a total volunteer population of one hundred nine students.

All subjects selected for the study considered themselves to be normally fluent speakers. This was determined by a questionnaire which was administered to the subjects after they had taken part in the experiment. (A copy of this questionnaire may be seen in Appendix A.) The question was asked, "Have you ever had a speech defect? If so, what was it? Describe." Three individuals who reported that they now "stuttered" or had "stuttered" at one time were not selected for the study. One individual reported that his "(r) sound was different because of a German accent"; another reported that he had had difficulty saying (r) at one time, but this problem was corrected in first grade; a third subject reported that "I used to mumble". All three of these men were employed as subjects. The rationale for considering these three people normally fluent subjects, was that they did not use terms which seemed to describe nonfluent speech in describing their own speech.

Originally seventy-six men volunteered as subjects. The men were asked to volunteer for a study of oral reading by the instructors of freshman speech classes, the instructor of military science classes and a senior on the football team. Volunteers were members of these classes or members of the freshman football team. One of the volunteers was not selected as a subject because he described himself as a "stutterer". Another volunteer was not selected because he was a sophomore. Because of a mechanical error the experimentor lost fifty-six of the recordings of the remaining seventy-four subjects. Therefore, instructors in psychology and humanities classes were asked to obtain more

volunteers for the study. One subject volunteered out of a group of approximately one hundred fifty male students in classes in humanities and twenty men volunteered from psychology classes. A senior in a fraternity obtained seven volunteers from the fraternity pledge class and the experimenter obtained five volunteers from history classes which had a total population of approximately one hundred men. Two of the second group of thirty-three volunteers were not used as subjects because they described themselves as "stutterers", and one of these additional volunteers was rejected as a subject because he was a sophomore. Therefore, of the one hundred nine volunteers, fifty-six were lost, two were sophomores, three considered themselves to have had fluency disorders and forty-eight were subjects for the experiment.

Twenty-seven of the forty-eight subjects had graduated from Montana high schools and eighteen of the men were from other states. The populations of the schools they had attended ranged from approximately forty-five students to twenty-nine hundred students. Three subjects had graduated from high schools in other countries. Two of the foreign students were from Canada and the third subject was an American citizen who had attended an English-speaking high school in Madrid.

Test Procedure

The subjects were taken individually by the experimenter to the testing room where they received the following instructions:

> We are studying oral reading. I am going to ask you to read this passage aloud. You will be asked to read it more than once. I will be listening to you from another room and will be able to give you instructions from that room. If you have any questions I will answer them when you have finished. Please try to do your best.

The three hundred word reading passage was taken from an advanced text in psychology[33] and was selected arbitrarily because it was considered by the experimenter that this reading would be difficult and unfamiliar to all of the subjects. (A copy of the reading passage may be seen in Appendix B.) The passage was modified slightly to make it somewhat more difficult.

Each subject read the three hundred word passage five times. Control group subjects were asked to read the passage again after the first, second, third and fourth readings. Experimental subjects received verbal criticism after each of the first four readings. A tape recording of the experimenter's voice giving instructions and criticisms was used in order to control variability of verbal instructions and criticisms. Critical comments in order of their administration were:

1) "That reading wasn't acceptable. Read it again.";
2) "You'll have to do better than that. Read it once more.";
3) "This is getting worse instead of better. Read it again.";
4) "I know you're trying, but that reading still isn't satisfactory. Read it again."

After the five readings were completed the examiner returned to the testing room and asked each subject to fill in the questionnaire. Experimental group subjects were then told, "Your readings were all acceptable and you would have been criticized no matter how good they were. The purpose of this study is to determine consistency of reading under conditions of criticism." Control group subjects were given

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[33]Morgan and Stellar, Physiological Psychology, Second Edition, McGraw-Hill Company, New York, 1950, pp. 264-265.

similar explanations about the purpose of the study. Each subject was asked to refrain from discussing the experiment with others.

Judging Procedure

Both the first and fifth readings were tape recorded without the subjects' knowledge during the experiment. These ninety-six samples were put in random order and played back independently to three observers who were asked to identify instances of nonfluency on a copy of the reading passage. These instances included revisions; interjections of sounds, syllables, words, phrases or sentences; prolonged sounds; broken words; repetitions of parts of words, words, or phrases; and pauses. Observers were allowed to play back any part of the recordings to make certain of their judgements. (A copy of the instructions to observers may be seen in Appendix C.) Listening time for the ninety-six samples was approximately four hours.

None of the observers had experience or training in identifying nonfluencies. One observer had taken a course in "Stuttering" at another school. Two had been introduced to the literature on fluency problems in an introductory Speech Pathology course at Montana State University. One of these two individuals had taken a second course in which a section of the course content is devoted to fluency problems. All were majors in Speech Pathology and Audiology, but none had worked as therapists with clinical subjects who had been diagnosed as "stutterers".

Each observer tabulated the total number of instances of nonfluency for each subject after judging was completed. These scores were used to determine inter-observer reliability with the Pearson Product Moment coefficient formula. The three intercorrelation coefficients

were: Observer I and Observer II - r = .62; Observer II and Observer III - r = .85; Observer I and Observer III - r = .85. The mean reliability score for the three observers was .77.

CHAPTER III

RESULTS

It was hypothesized that a group of normally fluent adult subjects would exhibit more nonfluencies following association of generalized verbal criticism with successive oral readings of a passage than would a non-criticized control group. The criterion measure for this study was the number of nonfluencies for an individual on the last reading, using the mean of the scores obtained by three observers.

This measure assumed that both the control group and the experimental group would be reading with no siginificant difference in frequency of nonfluencies during the first reading. To test this assumption, a t test of the difference between mean number of nonfluencies for both groups on the first reading was used. The mean nonfluency score for the control group was 19; for the experimental group the mean nonfluency score on the first reading was 22. This difference was not significant at the 5% level of confidence when $t = .12$; $df = 23$.

The mean nonfluency score on the fifth reading was 9.6 for the control group and 10.3 for the experimental group. An evaluation of the difference of these scores gives a $t = .07$, with $df = 23$. These results were not significant at the 5% level of confidence.

In order to identify the adaptation effect in these groups of

speakers, the adaptation score[34] was employed. Mean percentage of adaptation was computed for both groups, using the scores from the first and fifth readings. For the control group, mean percentage of adaptation was 49% and for the experimental group, 56%. A t test of the difference in these scores was not significant at the 5% level of confidence with $t = .12$; $df = 23$.

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[34] % of adaptation = $\frac{a-e}{a} \times 100$. (a = number of nonfluencies on the first reading and e = number of nonfluencies on the fifth reading.)

CHAPTER IV

DISCUSSION

The analysis of fluency indicates that the particular criticisms used and the manner in which they were administered in the experiment did not significantly influence frequency of nonfluency during five successive readings of the passage. Therefore, the hypothesis that normally fluent subjects would exhibit more nonfluencies following association of generalized verbal criticism with successive oral readings of a passage than would a non-criticized control group was not supported by this study.

This lack of evidence of effect of criticism on fluency may have been due to the use of artificial criticism. In an attempt to control variability of administration of criticism, the writer set up an artificial condition of criticism for this study. Criticisms were tape recorded and played back in the same order to each subject. Before beginning this study the writer conducted an exploratory study with six subjects who read under conditions of criticism and praise. Each subject read two passages three times. On one set of readings the subject was praised for his performance in between each reading. On the other set, the subject was criticized. Three of the six subjects showed improvement in fluency to be inhibited under conditions of criticism and one of these three was twice as nonfluent after criticism. Criticism as

administered in this exploratory study was spontaneous and administered over the loudspeaker. Although each subject received the same critical comment on each reading, no attempt was made to control the variability of tone of voice or expression. During the main study three of the subjects commented on the "regularity" of criticism. Criticism in this study may have sounded artificial to the subjects.

"Severity" of criticism was not rated before it was administered to the subjects in this study. Although generalized critical terminology was used (e.g., "wasn't acceptable", "not satisfactory"), the writer now questions the critical value of these terms. The judgements "satisfactory" and "acceptable" appear to be more "formal" in this type of experiment than would terms used in the pilot study (e.g., "good", "poor", "your best"). It is probable that the subjects in this experiment would have reacted differently to terms which are less formal and more likely to be used spontaneously in a classroom situation. The experimenter's tone of voice or expression on the tape recording may not have conveyed a high degree of "severity". In addition, the writer questions the construction and placement of the final criticism ("I know you're trying, but that reading still isn't satisfactory. Read it again.") The words, "I know you're trying", are not critical and imply a sympathetic attitude on the part of the experimenter. This particular criticism was the last administered before the final reading, and the writer now questions the value of placing this criticism at that point. It is suggested that "severity" of criticism might have been rated prior to the experiment by subjecting the critical evaluations to scaled judgements.

Another characteristic of this study which may have influenced

the results was the fact that only volunteer subjects were available. These subjects may have represented a population which was less likely to be affected by criticisms than a population of subjects selected in some other manner. The fact that the experimenter obtained only six subjects out of an approximate total of three hundred men in history and humanities classes, may indicate that those men who did volunteer differed from a greater population in interests or motivations.

Lerea's[35] subjects were members of a speech class and were required to perform as part of a class project. These subjects knew they were being judged by their listeners and it is assumed they attempted to perform efficiently. Unlike Lerea's subjects, the groups participating in this study had no particular reason to believe that a judging procedure would be employed in the experiment until criticism was administered. It is believed that the oral reading situation, as it was designed, was not a situation which set high standards of achievement for the volunteer subjects. The subjects were told they were participating in a "study of oral reading" and were asked to "do your best". It is possible that criticism might have had a measurable effect on the speech fluency of subjects who had been motivated to perform well for a grade and who were more aware that their performance would be evaluated or rated according to previously defined standards of achievement.

In this discussion of subjects' motivation it may be interesting to mention that individuals who took part in this study were not aware that their readings were recorded. During the pilot study readings, the recorder was placed on a table in front of the subjects. The fact that

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[35]Louis Lerea, "Verbal Behavior of Speech Fright", op. cit.

a recording was being made may have implied an evaluative judgement to those subjects and influenced their motivation to perform well.

Five of the subjects in this experiment questioned the experimenter about speed of reading either immediately following the first or second criticism or after they had completed the questionnaire. Questions indicated that these subjects wanted to know if they were expected to read the passage "faster or slower" after their readings had been criticized. These questions suggest that although the criticism did not inhibit improvement of fluency in these subjects, there may have been reactions to expressed disapproval. Analysis of reading rate on the fifth reading revealed no statistically significant differences between groups. The experimenter observed an increase of body movements in some subjects following criticism. These movements included foot tapping, leg swinging, rhythmic swaying of the head and body, and deep breathing. Contrary to the above discussion, criticism may have been severe enough to elicit a physiological response in some cases, but had no adverse effect on fluency. These observations suggest that it might be advantageous to measure physiological responses as an independent check on the "severity" of criticism.

During the pilot study, measures of fluency were made after three readings. In that exploratory study half of the subjects showed an increase of nonfluent speech following criticism. There is a possibility that had measures been made after each reading in this study, some observable effect of criticism on frequency of nonfluency may have been noted. It seems tenable that though the first criticisms may have had immediate effect on frequency of nonfluency, this effect had diminished by the

completion of the fifth reading. There is, however, no data in this study to support this contention.

This study agrees with the Johnson study in that it found nonfluency to be a normal characteristic of speech. It differs from the Johnson[36] study, however, in that the range of nonfluency per one hundred words is more extensive. Johnson found the range for male normal speakers on the reading task to extend from 0 to 4.0 per one hundred words. This study shows the range of nonfluency for both groups to be from 1.9 to 23.0 per one hundred words on the first reading. This difference may probably be attributed to difference of reading passages. The Johnson study used a passage which was constructed by Darley[37] and entitled "Test Passage for Measurement of Reading Rate". The passage used in this study has been discussed in Chapter II and was selected specifically because it was considered a "difficult and unfamiliar" passage.

Although this study did not demonstrate a positive relationship between generalized criticism of speech and increase of nonfluency, further experimental study of the effect of criticism on fluency of normally fluent speakers is suggested. It is suggested that attention be focused on these aspects of the experimental condition: 1) spontaneous criticism; 2) severity and wording of criticism; 3) motivation level of the subjects; 4) measures of physiological or non-verbal responses to criticism and 5) fluency measures for each reading following criticism.

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[36]Wendell Johnson, "Measurements of Oral Reading and Speaking Rate and Disfluency of Adult Male and Female Stutterers and Non-Stutterers", op. cit., p. 14.

[37]Grant Fairbanks, Voice and Articulation Drillbook, Harper & Brothers, New York, 1940, p. 144.

CHAPTER V

SUMMARY AND CONCLUSIONS

It was hypothesized that a group of normally fluent adult subjects would exhibit more nonfluencies following association of generalized verbal criticism with successive oral readings of a passage than would a non-criticized control group.

A group of forty-eight subjects was selected from a total volunteer population of one hundred nine men. These subjects were randomly divided into two equal groups. The control group read a three hundred word passage five times, but was criticized after the first, second, third and fourth readings. The first and fifth readings were recorded for all subjects. Three independent observers identified instances of nonfluency from these recordings. The criterion measure for this study was the number of nonfluencies for an individual on the last reading, using the mean of the scores obtained by the three observers.

Results of a t test of the difference of these scores, between groups, were not significant at the 5% level of confidence. Results also indicated that adaptation (or improvement of fluency) was present in both groups of normally fluent speakers.

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APPENDICES

APPENDIX A

Questionnaire Completed by Subjects After Reading

QUESTIONNAIRE

NAME _____

DATE OF BIRTH _____
Year Month Day

YEAR IN COLLEGE _____
Freshman Sophomore Junior Senior

MAJOR _____

NAME OF HIGH SCHOOL ATTENDED _____

HOW MANY STUDENTS? _____

SPEECH EXPERIENCE:

Debate ____ Declamation ____ Oral Reading ____
Drama ____ Choral Reading ____ Other ____

Have you ever had a speech defect? If so, what was it? Describe.

_____

Have you ever had a hearing problem? _____

Have you had military service experience? _____

To what social organizations do you belong? _____

Have you been a subject in any other research study? If so, specify.

_____

APPENDIX B

Three Hundred Word Reading Passage

THREE HUNDRED WORD READING PASSAGE

The specificity of the different pathways for pressure, pain and temperature are of utmost importance. The fact that there are such pathways is, of course, a good argument, which we did not bother to mention previously for the specific function of the receptors. The fact has been established in various methods. One of them is what happens in a disease called syringomyelia. This debilitating disease originates in the central gray matter of the cord and spreads outward. In its traverse, one sees various degrees of impairment of somesthetic experiences. The first to be lost is sensitivity to pain. When it is almost gone, there may be little or no impairment of pressure and thermal sensitivity. Next to go is temperature. Finally, when the disease is well advanced, pressure sensitivity also is eliminated. The order of progress does not follow neatly as this in every case, but ordinarily this occurs. The spinothalamic tracts of the spinal cord keep on going upward until they reach the thalamus. But in the hindbrain there are two additions to the system. One is the addition of pathways for the head and face. The sensory tracts of the spinal cord serve only the trunk and limbs. Somesthetic impulses from the head come in directly to the brain over cranial nerves. Several nerves take part in this pathway, among them the facial and the trigeminal. The hindbrain, aside from these inputs from the cranial nerves is also a way station for the kinesthetic pathways of the spinal cord - two specific tracts. In the medulla are two nuclei and it is in these nuclei that the long kinesthetic fibers of the dorsal columns end. In these

nuclei are the cell bodies of second-order neurons that send axons up to the thalamus. Pain and temperature impulses run laterally.

APPENDIX C

Instructions To Observers

INSTRUCTIONS TO OBSERVERS

You will be listening to recordings of a group of individuals reading this passage. The purpose of this judgement is to determine the number of instances of nonfluencies occuring during each reading. Will you please circle the word or space in which the nonfluency occurs on the copy of the reading that has the code number at the top for that particular reading. You may play back the recording to be more certain of your judgements at any part of the readings. Nonfluencies to be recorded and examples are as follows:

Revisions: Whenever an individual changes his pronunciation of a given word from the way he first pronounced it (correctly or incorrectly) a revision occurs. If the same word occurs later in the passage and pronunciation is changed this is not counted as a revision. (e.g. "The consitency - consistency" is counted as a revision.)

Interjections of sounds, syllables, words, phrases or sentences: Whenever a word, sound, syllable, phrase or sentence that does not occur on your copy of the reading is heard this is counted as an interjection. (e.g. "The 'a' ball" is an example of a sound interjection.)

Repetitions of parts of words, words, or phrases: e.g. "The inter - interesting notation" is an example of a part word repetition.

Pauses: Whenever a pause occurs in the reading that would not be considered to add meaning or expression to the reading this pause is counted as a nonfluency. (e.g. "The first day.")

Prolonged sounds: Example of a prolonged sound: "Proooooolonged".

Broken words: Example of a broken word: "bro ken".

If you have any questions I will be glad to answer them now, but I will not answer any questions after the judging begins.

APPENDIX D

Raw Data

RAW DATA

EXPERIMENTAL GROUP

Subject	Reading I Judgements			Mean	Reading V Judgements			Mean
	I	II	III		I	II	III	
2	15	26	22	21.	3	5	5	4.3
6	66	77	64	69.	34	76	51	53.6
8	11	23	15	16.3	3	4	2	3.
10	21	33	29	27.6	7	12	5	8.
11	13	30	27	23.3	10	8	9	9.
13	13	23	21	19.	6	10	11	9.
15	4	14	9	9.	7	10	7	8.
16	6	13	3	7.3	3	4	3	3.3
17	15	19	24	19.3	5	14	13	10.6
18	8	23	19	16.6	4	5	5	3.6
20	13	40	22	25.	8	11	9	9.3
24	8	11	9	9.3	0	3	0	1.
27	14	26	24	21.3	9	15	13	12.3
28	10	22	17	16.3	4	9	4	5.6
31	19	31	21	23.6	7	10	6	7.6
33	14	19	17	16.6	6	20	8	11.3
37	24	44	24	30.6	15	20	9	14.6
38	14	21	13	16.	5	14	4	7.6
39	15	26	18	19.6	2	10	4	5.3
40	13	34	36	27.6	12	9	8	9.6
44	22	31	19	24.	2	6	4	4.
46	22	50	30	34.	13	26	29	22.6
47	29	34	26	29.6	18	22	20	20.
60	5	6	6	5.6	2	7	3	4.

RAW DATA

CONTROL GROUP

Subject	Reading I Judgements			Mean	Reading V Judgements			Mean
	I	II	III		I	II	III	
1	11	19	15	15.	7	11	7	8.3
3	5	9	6	20.	5	9	6	20.
5	16	29	22	22.3	11	25	13	16.3
7	27	34	28	29.6	13	27	15	18.3
9	12	26	28	22.	9	14	10	11.
14	8	16	8	10.6	2	8	5	5.
22	13	27	27	12.3	1	5	3	3.
23	5	11	6	7.3	5	7	8	6.6
25	28	43	37	36.	14	31	29	24.6
26	8	28	20	18.6	4	9	5	6.
29	12	17	13	14.	5	9	5	6.3
30	30	30	26	28.6	11	17	15	14.3
32	16	32	25	24.3	9	15	16	13.3
34	8	18	11	12.3	1	3	1	1.6
35	12	19	11	14.	4	10	7	7.
41	13	13	9	11.6	3	13	6	7.3
42	15	36	18	23.	7	13	8	9.3
43	8	20	16	14.6	2	1	3	2.
45	13	32	20	21.6	7	13	7	9.
48	30	64	43	45.6	12	22	13	15.6
49	6	13	13	32.	2	10	7	6.3
52	23	40	39	34.	17	24	31	24.
66	8	10	8	8.6	4	6	5	5.
73	8	20	10	12.6	2	6	4	4.